PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

COMPUTER METHODS IN ENGINEERING PROBLEM SOLVING
CSIT 1050

Class Hours: .67 Credit Hours: 1.0
Laboratory Hours: .33 Revised: Fall 2015

Catalog Course Description:

Introduction to computer applications used in engineering problem solving and communication. This course includes an introduction to programming concepts, including conditional statements, looping, problem analysis, engineering data utilization and algorithm development.

Entry Level Standards:

The entry-level student is expected to have familiarity with computers. The student must have math (trigonometry and algebra), writing, verbal and English language skills at the college-entry level.

Prerequisites:

None

Corequisites:

ENS 1510

Textbook(s) and Other Course Materials:

Required Textbook: None

Required Materials: 2GB (minimum) Flash/Pen/Jump USB Storage Drive, 3 Ring Notebook, ear buds or earphones, graphing calculator (e.g. TI-84).

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to computers, computer components, engineering use of computers, resources, application software, lab assignments</td>
</tr>
<tr>
<td>2</td>
<td>Math concepts, engineering use of computers, review of calculator skills</td>
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<tr>
<td>3</td>
<td>Introduction to Excel; algorithm development</td>
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<tr>
<td>4</td>
<td>Use of Excel for mathematical problem solving and plotting; data utilization</td>
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<tr>
<td>5</td>
<td>Use of Excel for numerical integration and differentiation</td>
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<tr>
<td>6-7</td>
<td>Excel Solver skills and practice</td>
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<tr>
<td>8</td>
<td>Midterm exam (written and applied)</td>
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<tr>
<td>9</td>
<td>Introduction to Computer Aided Design</td>
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</table>
II. Course Goals*: 

The course will

A. Provide lab use of application software suitable for engineering problem solving and communication. I, II, III, IV

B. Provide opportunities for students to apply engineering processes to convert raw data into meaningful information. I, II, III, IV.

C. Provide instruction in the construction of solutions to common engineering problems using Excel, Matlab and other programming languages or applications. I, II, III, IV, V.

D. Provide entry level understanding of data storage, program storage, coding syntax, function usage, algorithm development, and programming concepts. I, III, IV, V.

*Roman numerals after course objectives reference goals of the CSIT program.

III. Expected Student Learning Outcomes*: 

Students will be able to:


2. Demonstrate the ability to formulate solutions to common engineering problems from specifications, real-world data representation, and real-world problem examples. (A, B, C)

3. Demonstrate efficient use of the computer system and its operating environments. (A, B, C, D)

4. Use Matlab to convert raw data into meaningful output and accurate results. (A, B, D)

5. Create solutions to simple engineering problems using a programming language. (A, B, C, D)

6. Demonstrate proficient use of Excel and Matlab to manipulate, store, process, retrieve and display data and information. (A, B, C, D)

7. Detect and correct errors in their proposed solutions. (A, C, D)

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

A. Testing Procedures: 40%

There will be assignments weekly to access knowledge and proficiency of the products used. There will be comprehensive midterm and final exams. Grades are based on total points
accumulated using the scale provided below.

B. Laboratory Expectations: 50% of grade

There will be a number of labs to reinforce lecture content. Lecture and lab attendance is required. Assignments will be given and must be completed and handed in at the designated date and time. All assignments turned in late will be reduced by 50%. Lab assignments may not be turned in for credit if more than 1 week late. There will be a quiz over each lab topic to verify attainment of lab objectives.

C. Field Work:

N/A

D. Other Evaluation Methods:

Class participation and performance on required homework or practice quizzes make up the final 10% of the course grade. Students must sign the roll-sheet daily to be counted in attendance.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>93 – 100%</td>
<td>A</td>
</tr>
<tr>
<td>88 – 92%</td>
<td>B+</td>
</tr>
<tr>
<td>83 – 87%</td>
<td>B</td>
</tr>
<tr>
<td>78 – 82%</td>
<td>C+</td>
</tr>
<tr>
<td>73 – 77%</td>
<td>C</td>
</tr>
<tr>
<td>65 – 72%</td>
<td>D</td>
</tr>
<tr>
<td>Below 65%</td>
<td>F</td>
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V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented
as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

**Computer Usage Guidelines:**
College-owned or -operated computing resources are provided for use students of Pellissippi State Community College. All students are responsible for the use of Pellissippi State's computing resources in an effective, efficient, ethical and lawful manner.

This information, if applicable, will be provided by the instructor via a syllabus supplement.